

Patent
Attorney Docket No.: 399483

REMARKS

Claims 1-34 are pending in the application. Claims 1, 12, and 20 are currently amended. Claims 14-19 and 21-34 are withdrawn without prejudice.

Claims 1-13 and 20 stand rejected for indefiniteness where the preambles of these claims formerly recited predicting the resistance of a genotype, and the body of the claim recites predicting this as to a sample. The amended preambles recite predicting this for the sample. This overcomes the rejection.

Claims 1-13 and 20 stand rejected under 35 USC §103(a) as being unpatentable over US publication no. 2003/0028914 to Liu et al. The Applicant respectfully traverses this rejection for reasons explained below. In summary, we respectfully submit that the rejection is improperly stated where the Office is using generalized teachings of Liu et al. in a manner that contravenes what Liu et al. expressly does say as to the particular manner of screening for nematode resistance. Liu et al. uses exclusively the direct application of nematodes to the plants for this purpose and does not teach, suggest or recognize the use of NIR in screening for nematodes.

The Office relies upon paragraphs 77 and 78 of Liu et al for the proposition that stems and leaves may be subjected to biochemical analysis, and paragraph 79 for the premise that this may be done by IR/NIR; however, this overlooks the more specific teaching in paragraphs 98-106 that testing for insect and nematode resistance is done by applying the pests to the plants. For example, Liu et al. states this in paragraph 103:

For each test, the interaction of the insects or nematodes with a mutant plant is compared to the interaction of the same species of insect with wild type plants.

Paragraph 106 particularly concerns testing for nematodes:

Plants that unexpectedly survive the nematode attack or plants that show no visible signs of root galls, cysts or penetration are potentially resistant and are retained for seed collection.

The foregoing excerpts show that the rejection based upon Liu et al. does not state a *prima facie* case of obviousness. This is because full consideration of the *entire*

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reference shows that Liu et al. in no way teaches or suggests the use of spectroscopy to identify pathogen resistance.

The Office has merely cited a passage in paragraphs 77-79 which says that IR/NIR may be used to perform biochemical analysis in "metabolic characteristics of interest" as specific materials including the level of vitamins, minerals, lipids, amino acids, etc. This may be done by correlation between metabolic changes as recited in paragraph 80. This is merely cumulative to paragraphs 14-18 of the present specification. In particular, paragraph 14 of the present specification says that NIR has been used to assess moisture, protein, starch, and oil contents of seeds of several crop species, also that plant breeders have used NIR to select for improved seed or forage quality, and this may be done using calibration equations. Nothing in the art teaches or suggests that soybean nematode resistance may be predicted by the use of IR.

The present claims distinguish the art of record by reciting a method or software for predicting the soybean cyst nematode resistance of a soybean sample. This is done by the use of NIR, which is completely different than the use of nematode exposure directly contacting the plants as taught by Liu et al. In fact, the Office must consider the invention as a whole including the problem addressed by Applicant, and how this differs from what Liu et al. taught. The more specific teaching of Liu et al. as to the method of screening for nematode resistance by the direct-contact methodology merely confirms the resource intensive and uncertain problem of the prior art. Liu et al. did not teach or suggest that screening for nematode resistance may be accomplished by the use of NIR, but actually taught away from what is claimed by teaching, instead, the direct application method.

Nothing in the art of record teaches or suggests the use of NIR, as is now claimed, to select for soybean nematode resistance. This is particularly useful in soybeans where, as described in paragraph 8 of the present specification, many of the PI's exhibit poor phenotypes that are not agronomically desirable from other perspectives.

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The Office objects to the disclosure for recitation of a URL in paragraph 6, and this has been deleted by the amendment to the Specification.

For the reasons stated above, Applicant's attorney respectfully solicits a Notice of Allowance. Applicant believes no fees are currently due. However, should any additional fees be required in connection with the filing of this Response, the Commissioner is hereby authorized to charge said fees to Deposit Account No. 12-0600.

Respectfully submitted



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